INCENTIVE-COMPATIBILITY IN DATA SECURITY

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OVERVIEW

- Trust in ‘security’ vs Trust in ‘people’
- Re-aligning Data Owner Risk and Research Risk

- How does this work contribute to thinking about data access?
RESEARCH DATA CENTRES

- Controlled facility for accessing sensitive data

- Safe room in an institution
  - Good start but:
    - Costly
    - Inconvenient
    - Inequitable

- Enjoying resurgence as ‘virtual RDCs’ – e.g. NORC, SDS
  - Exploit benefits of RDC
  - Avoids physical access problems

- ‘People risk’ is key to security
  - Involves a different way of working
TRADITIONAL THINKING: PARAMETERS

Research

- Risk-averse
- Security
- Risk-neutral
- Convenience
OBJECTIVE FUNCTIONS

• \( V \text{ (Data Owner)} = U [\text{Risk (-ve), Research (+ve), Control (-ve)}] \)

• \( V \text{ (Researcher i) } = U [\text{Research (+ve), Control (-ve)}] \)

So both Data Owners and Researchers face:
• ‘negativity’ in terms of control,
• ‘positivity’ in terms of Research

- we just need to deal with Risk
IF WE DON’T?

• Leads to inefficient outcomes: ‘them and us’

• Data Owner
  • Little incentive to develop trust
  • Access controls focus on deliberate misuse

• Researcher
  • Access controls are a cost to research
  • No incentive to build trust

• Data Owners don’t benefit from research
• Researchers become frustrated, Data Owners gain “bad” reputation

So we need to manage this ‘risk’
WE CAN CONTROL EVERYTHING….. EXCEPT PEOPLE!

- Safe Projects
- Safe Outputs
- Safe People
- Safe Settings
- Safe Data

Risk derives from People

After Ritchie 2004
INCENTIVE COMPATIBILITY FOR RDCs

BAD ECONOMICS!
CHANGING THE MESSAGE (1):
BEHAVIOUR OF RESEARCHERS

• **Aim**
  – researchers see risk to facility as risk to them

• **Message**
  – we’re all in this together
  – no surprises, no incongruities
  – we all make mistakes

• **Outcome**
  – giving something back
  – fessing
CHANGING THE MESSAGE (2): BEHAVIOUR OF DATA OWNER

• Aim
  – positive engagement with researchers
  – realistic risk scenarios

• Message
  – research is a repeated game
  – researchers will engage if they know how
  – contact with researchers is of value per se

• Outcome
  – improved risk tolerance
  – Increased range of ‘useful’ data
NEW THINKING: PARAMETERS

Research

- Risk
- Convenience
- Security
DOES THIS WORK?

- Objectives / Incentives more aligned

- Secure Data Service – intermediary between data owners and researchers

- Secure Data Service – audit reveals ‘self-monitoring’ by researchers

- Number of Data Owners: 2011: 2, 2012: 6

YES!!
THANKS FOR LISTENING!

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